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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/602,345

Applicant(s)

OAKLEY, WILLIAM S.

Examiner

Hai C Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22 is/are allowed.
- 6) ☒ Claim(s) 1-16, 18-21, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 3-4, 18, 20-21 is withdrawn in view of the newly discovered reference to Ota et al. (U.S. 5,619,488). Rejections based on the newly cited reference follow.

Claim Objections

2. Claims 2 and 24 are objected to because of the following informalities:

Claim 2:

- Line 2, "VCSELs" should read --Vertical Cavity Surface Emitting Lasers (VCSELs)--.

Claim 24:

- Line 8, "reading arrays" should read --reading array--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 11-16 and 18-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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Claim 11:

- The following limitation “the first VCSEL array is located on a first substrate, and the second VCSEL array is located on a second substrate” at lines 10-11 appears to be misleading since the first and second substrate are tentatively claimed as being separate. However, both first and second VCSEL arrays are disclosed and displayed in Fig. 2A as being located on a single substrate.

Claim 18:

- Claim 18 recites the following limitation “the first and second substrates are integrated into a common substrate”, which further demonstrates the apparent misteaching of the limitation recited in the base claim 11. Claims 11-17 and 18-21 will be interpreted as claiming both first and second VCSEL arrays being located on a single substrate based on Fig. 2A, until the Applicant resolve the indefiniteness.

Claims 12-16, 19-21 are dependent from claim 11 above, and are therefore indefinite.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 1-6, 8, 11-13, 15, 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Ota et al. (U.S. 5,619,488).

Ota et al. discloses an optical recording system comprising a writing array of modulatable light sources (light emitting elements of the two-dimensional semiconductor array 115 facing the rows of planar micro-lenses 116b having the phase shifters 116d of larger diameters), a reading array of modulatable light sources (light emitting elements of the two-dimensional semiconductor array 115 facing the rows of planar micro-lenses 116b having the phase shifters 116c of smaller diameters) (Figs. 30a-b) (col. 17, lines 34-58), an objective lens (image forming lens 104 or 127) positioned relative to said writing array and said reading array of modulatable light sources such that said objective lens is capable of focusing one light beam from each of said writing array and said reading array of modulatable light sources on a target medium (111), wherein the writing array and reading array are embedded in a common substrate (115a, Fig. 29).

Ota et al. further teaches:

- the writing array and said reading array of modulatable light sources being first and second arrays of VCSELs (col. 17, lines 7-33),
- a detector (photodiode array 119) to receive a set of one or more beams, the set of one or more beams being emanated from the reading array and are reflected from the target medium (col. 18, lines 10-27),
- each VCSEL of said first VCSEL array being capable of writing a separate track on the target medium (writing beam spots 143a-143d, Fig. 32),
- said modulatable light sources being spaced at regular intervals (Fig. 29),

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- said regular intervals comprising center-to-center distances of at least 40 microns (element-to-element distance r_1 of 100 μm),
- each modulatable light source of at least one line of modulatable light sources being associated with a separate path on said target medium (Fig. 32).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 9-10, 16, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. in view of Jewell et al. (U.S. 5,526,182).

Ota et al. discloses all the basic limitations including the writing array positioned orthogonal relative to a direction of movement of the target medium, a beam splitter (118) and a polarizer (117), but fails to teach the writing array being positioned at an angle relative to a direction of movement of the target medium, a polarizing type beam-splitter, and the circularly polarizing plate or quarter wave plate positioned adjacent to the polarizing type beam splitter. Ota et al. also fails to teach multidimensional writing and reading arrays.

However, Jewell et al. discloses an optical recording system comprising an array of modulatable light sources (array 35, Fig. 7,) which can perform both reading and writing data (col. 5, lines 59-63,) and an objective lens (focusing lens 47) positioned

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relative to said array of modulatable light sources such that said objective lens is capable of focusing at least one light beam from said array of modulatable light sources on a target medium (optical recording medium 8,) the array of modulatable light sources comprising an array of VCSELs (Fig. 7), and a detector (48 and/or 64) to receive a set of one or more beams, the set of one or more beams having emanated from the array of VCSEL and the set of one or more beams having reflected from the target medium. Jewel et al. further teaches the modulatable light sources being spaced at regular intervals (Figs. 1-4), the writing array of the modulatable light sources comprising at least one line of modulatable light sources positioned at an angle relative to a direction of movement of said target medium (Fig. 1), each modulatable light source being associated with a separate path on said target medium (Fig. 5), a polarizing beam-splitter (38) located between the light sources and the objective lens, and a circularly polarizing element as a quarter wave plate (39) located adjacent said polarizing beam-splitter. Jewell et al. further teaches the writing and reading arrays can be either of one-dimensional or multi-dimensional light source arrays (Figs. 1-4).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Ota et al. with the aforementioned teachings of Jewell et al. The motivation for doing so would have been to allow the writing/reading system to attain high optical efficiency as suggested by Jewell et al. at col. 7, lines 61-65.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. in view of Fiske (U.S. 6,078,468).

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Ota et al. discloses all the basic limitations of the claimed invention except for the writing array and the reading array emitting light beams of different wavelengths.

Fiske discloses a data storage and retrieval apparatus having a read and/or write head, which comprises a linear arrangement of vertical Cavity Surface Emitting Lasers (92), an objective lens (microlens array 96 including focusing lens 98) for each VCSEL, and a detector (94) to receive a set of one or more beams emanated from the reading array of VCSEL and reflected from the target medium (disk 48). Fiske further suggests that multiple heads can be used for reading and writing where "the read laser beam is of different frequency than the write laser beam" (col. 15, lines 21-25).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a writing array and a reading array emitting light beams of different wavelengths as taught by Fiske in the device of Ota et al. The motivation for doing so would have been to allow the reflected reading beams be efficiently separated from the reflected writing beams and read by the photodiode.

Allowable Subject Matter

10. Claim 22 is allowed.

11. Claims 20-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 20-21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

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Response to Arguments

13. Applicant's arguments with respect to claims have been considered but are moot in view of the new grounds of rejection presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (703) 308-1281. The examiner can normally be reached on T-F (8:30-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin R. Fuller can be reached on (703) 308-0079. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722, (703) 308-7724, (703) 308-7382, (703) 305-3431, (703) 305-3432 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



**HAI PHAM
PRIMARY EXAMINER**

July 23, 2003